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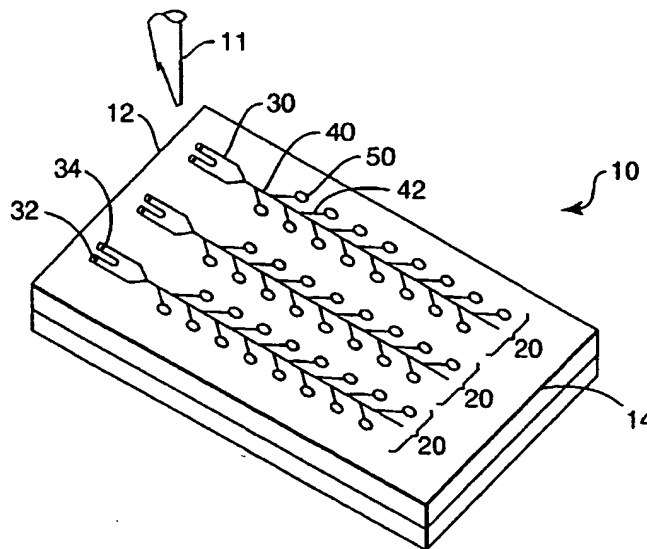
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(54) Title: SAMPLE PROCESSING DEVICES



(57) Abstract: Methods and devices for thermal processing of multiple samples at the same time are disclosed. The sample processing devices provide process arrays that include conduits useful in distributing sample materials to a group of process chambers located in fluid communication with the main conduits. The sample processing devices may include one or more of the following features in various combinations: deformable seals, process chambers connected to the main conduit by feeder conduits exiting the main conduit at offset locations, U-shaped loading chambers, and a combination of melt bonded and adhesively bonded areas.



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INTERNATIONAL SEARCH REPORT

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According to International Patent Classification (IPC) or to both national classification and IPC

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Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 21090 A (GAMERA BIOSCIENCE) 12 June 1997 (1997-06-12) figures 1A,1C,7,8,9,11,17Q,23A,26 claims 1,7,12,28,46 page 5, line 1-5 page 10, line 1 page 12, line 30 page 17, line 24-30 page 22, line 5-17 page 24, line 20 -page 27, line 12 page 25, line 24-32 ---	1-3,23, 24,27
X	US 4 673 657 A (CHRISTIAN CLIFFORD N) 16 June 1987 (1987-06-16) figures 12,14,15,19 column 12, line 12-62 column 14, line 68 -column 15, line 23 column 17, line 53 -column 18, line 61 --- -/--	1,2

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A document member of the same patent family

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Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl. Fax (+31-70) 340-3016	Authorized officer Wyplosz, N
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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 01/20619

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 01 07892 A (ESPERION THERAPEUTICS INC ;REA THOMAS J (US)) 1 February 2001 (2001-02-01) figures 1-8 ---	1, 2
X	WO 96 15576 A (SARNOFF DAVID RES CENTER) 23 May 1996 (1996-05-23) page 33, line 20-32 column 36, line 5-22; figure 1 ---	1
A	EP 0 402 994 A (EASTMAN KODAK CO) 19 December 1990 (1990-12-19) the whole document ---	28
A	UNGER: "Monolithic Microfabricated Valves and Pumps by Multilayer Soft Lithography" SCIENCE, vol. 288, 7 April 2000 (2000-04-07), pages 113-116, XP002192277 the whole document -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/20619

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9721090	A	12-06-1997	AU 702403 B2	18-02-1999
			AU 1283397 A	27-06-1997
			CA 2239613 A1	12-06-1997
			CN 1208464 A	17-02-1999
			EP 0865606 A1	23-09-1998
			JP 2002503331 T	29-01-2002
			NO 982563 A	05-08-1998
			WO 9721090 A1	12-06-1997
			US 2001055812 A1	27-12-2001
			US 6319469 B1	20-11-2001
			AU 4144897 A	06-03-1998
			EP 0917648 A1	26-05-1999
			JP 2001503854 T	21-03-2001
			WO 9807019 A1	19-02-1998
			US 6143248 A	07-11-2000
			US 4673657	A
US 4708931 A	24-11-1987			
EP 0139373 A1	02-05-1985			
JP 60104260 A	08-06-1985			
JP 60100055 A	03-06-1985			
WO 0107892	A	01-02-2001	WO 0107892 A1	01-02-2001
WO 9615576	A	23-05-1996	US 5585069 A	17-12-1996
			US 5632876 A	27-05-1997
			US 5603351 A	18-02-1997
			AU 705351 B2	20-05-1999
			AU 4152396 A	06-06-1996
			AU 705659 B2	27-05-1999
			AU 4233796 A	06-06-1996
			CA 2204912 A1	23-05-1996
			CA 2205066 A1	23-05-1996
			EP 0791238 A1	27-08-1997
			EP 0808456 A1	26-11-1997
			JP 11500602 T	19-01-1999
			JP 2001509727 T	24-07-2001
			WO 9615450 A1	23-05-1996
			WO 9615576 A1	23-05-1996
			US 5681484 A	28-10-1997
			US 5643738 A	01-07-1997
			US 5593838 A	14-01-1997
			US 5846396 A	08-12-1998
			US 5985119 A	16-11-1999
			US 5755942 A	26-05-1998
			US 5863708 A	26-01-1999
			US 5858804 A	12-01-1999
			AU 709581 B2	02-09-1999
			AU 4233496 A	24-12-1996
			AU 714664 B2	06-01-2000
			AU 4233596 A	24-12-1996
			CA 2223099 A1	12-12-1996
			CA 2223166 A1	12-12-1996
			CN 1193927 A	23-09-1998
EP 0883442 A1	16-12-1998			
EP 0869850 A1	14-10-1998			
JP 11506183 T	02-06-1999			
JP 11506412 T	08-06-1999			

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/20619

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9615576	A	WO 9639252 A1	12-12-1996
		WO 9639260 A1	12-12-1996
		US 5842106 A	24-11-1998
		US 5858193 A	12-01-1999
		AU 6590096 A	09-01-1997
		US 6120665 A	19-09-2000
		WO 9642004 A2	27-12-1996
		US 6331439 B1	18-12-2001
		US 5980704 A	09-11-1999
		EP 0402994	A
CA 1329698 A1 24-05-1994			
CA 2016981 A1 12-12-1990			
CA 2016982 A1 12-12-1990			
DE 69014423 D1 12-01-1995			
DE 69014423 T2 07-09-1995			
DE 69015006 D1 26-01-1995			
DE 69015006 T2 03-08-1995			
DE 69030122 D1 10-04-1997			
DE 69030122 T2 10-07-1997			
EP 0402994 A2 19-12-1990			
EP 0402995 A2 19-12-1990			
EP 0606961 A1 20-07-1994			
HK 134995 A 01-09-1995			
IE 902106 A1 19-06-1991			
IE 902107 A1 19-06-1991			
JP 3019700 A 28-01-1991			
JP 3089939 A 15-04-1991			
KR 152656 B1 01-10-1998			
SG 16695 G 18-08-1995			
US 5460780 A 24-10-1995			